



Proposed Amendment to the Policy for Water Quality Control for Recycled Water

Public Hearing

June 19, 2018 – Item 5

Laura McLellan

Environmental Scientist
Division of Water Quality

Tessa Fojut

Environmental Scientist
Division of Water Quality



RECYCLED WATER POLICY

2009

**Policy
Adopted**

2013

**Policy
Amended to
include CEC
Monitoring**

2010

**Science
Advisory Panel
on CECs**

2016

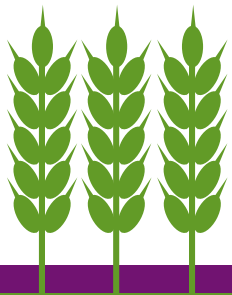
**Resolution
to Evaluate
SNMPs &
Amend Policy**

2018

**Public
Release
of Draft
Amendment**

2017

**Science
Advisory Panel
on CECs**



Stakeholder outreach

March – August 2017

Targeted
Listening
Sessions

July 19, & 21, 2017

CEC Science
Advisory
Panel Public
Meetings

December 1 & 5, 2017

CEQA Early
Consultation
Meetings and
Public
Comment
Period

December 15, 2017

CEC Science
Advisory
Panel public
meeting



Stakeholder outreach

January 4 & 11, 2018

Staff
Workshops

January 31 – March 2, 2018

Public
Comment
Period on
Draft CEC
Panel
Report

April 25, 2018

Final CEC
Panel
Report
Released

May 9, 2018

Draft
Proposed
Amendment
Released for
Public
Comment

June 11, 2018

Staff
Workshop
on
Bioanalytical
Screening
Tools

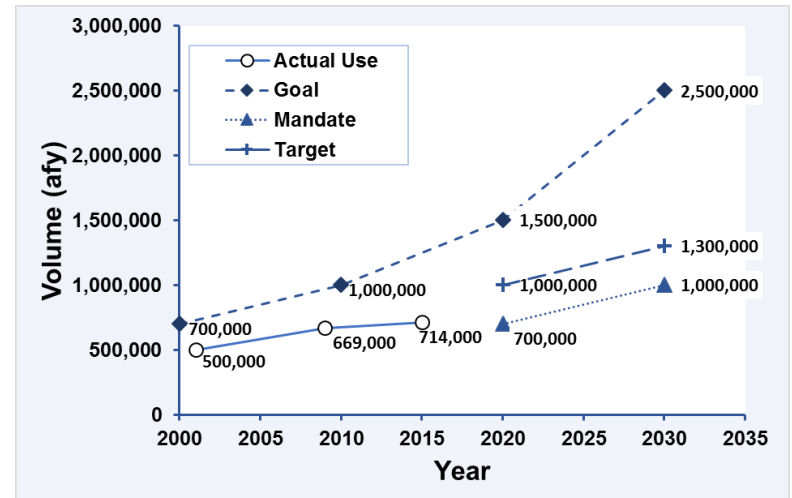


Proposed Amendments

- Goals and mandates
- Reporting requirements
- Wastewater change petitions
- Salt and nutrient management planning
 - Basin identification
 - SNMP review process
 - Periodic evaluation
- Permitting
 - Non-potable projects
 - Groundwater recharge projects
 - Reservoir water augmentation
- CEC monitoring requirements
- Permit review and update



Goals, Mandates, and Reporting Requirements



- Remove mandates
- Maintain current numeric goals
- Add a narrative goal to minimize direct discharge to ocean waters, bays, estuaries, and coastal lagoons, except to maintain beneficial uses
- Establish statewide reporting requirements for
 - monthly* • Wastewater available for reuse, including influent, treatment level, and volume disposed
 - annually* • Recycled water used

Wastewater Change Petitions



- Clarify the process and requirement to comply with Water Code section 1211
- Require proposed project to receive
 - 1) Determination that an order approving the change is not required; OR
 - 2) Order approving the change
- Allow Division of Water Rights to consider potential cumulative impacts

Salt and Nutrient Management Planning



Basin identification SNMP review

Periodic evaluation



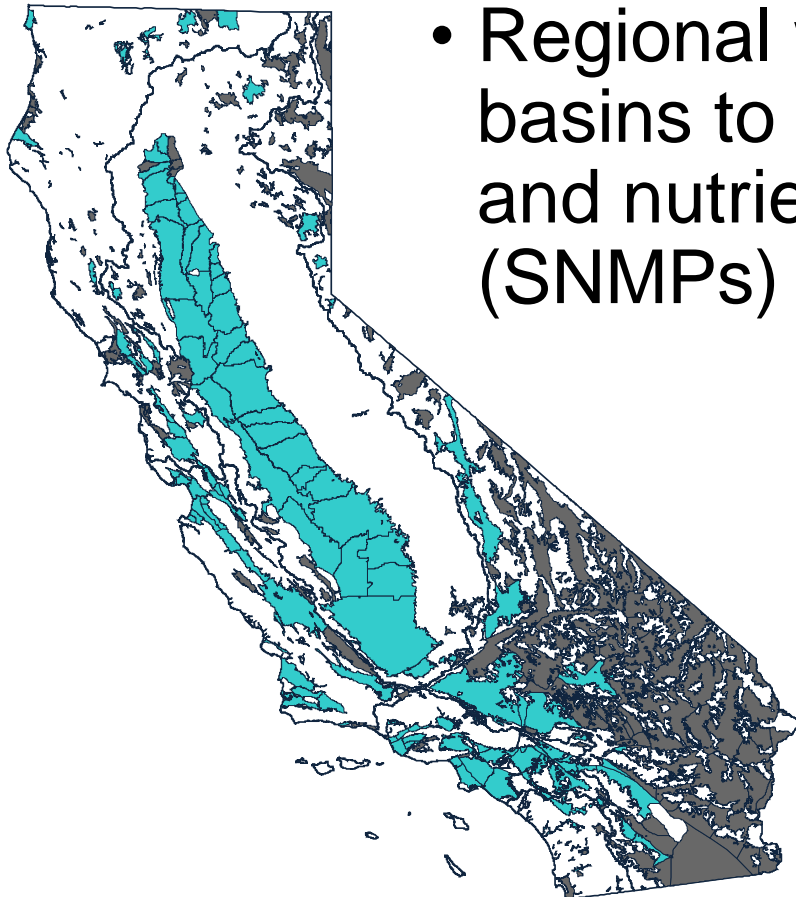
Salt and Nutrient Management Planning



Basin identification

SNMP review

Periodic evaluation



- Regional water boards evaluate basins to identify basins needing salt and nutrient management plans (SNMPs)

Salt and Nutrient Management Planning



Basin identification [SNMP review](#)

Periodic evaluation

Regional Board evaluate plan to determine if...

1

**SNMP is
adequate and
basin plan
amendment
needed**

2

**SNMP is
adequate and
basin plan
amendment not
needed**

3

**SNMP is
inadequate and
stakeholders
address changes**

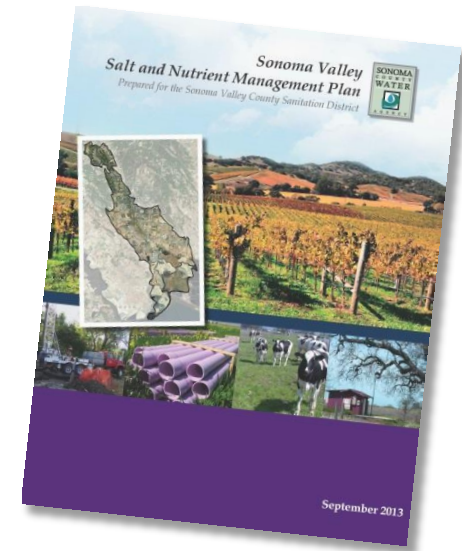
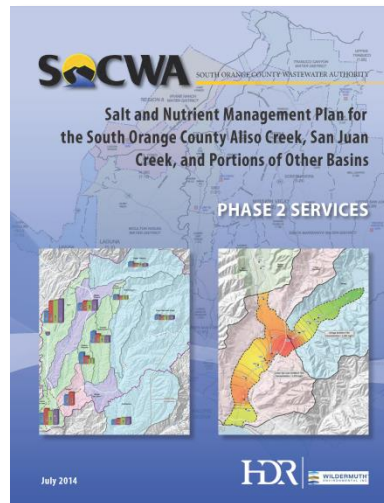
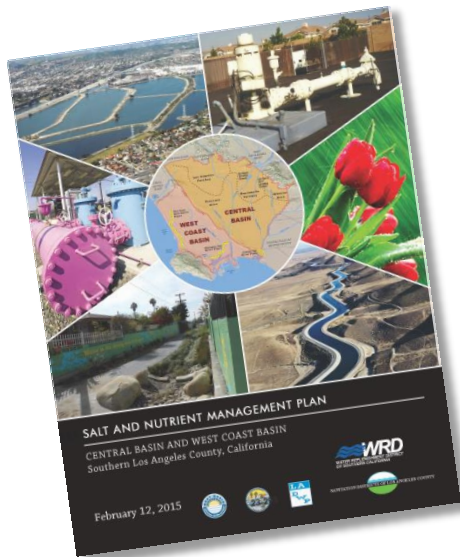
Salt and Nutrient Management Planning



Basin identification SNMP review

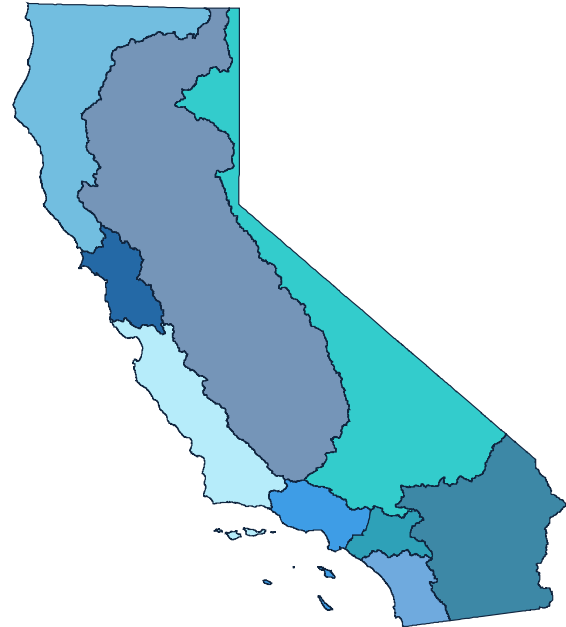
Periodic evaluation

- Periodic assessment of monitoring data generated from SNMPs every ~5 to 10 years



Permitting and Antidegradation Analysis

Non-potable Groundwater recharge Reservoir water augmentation



Permitting and Antidegradation Analysis

Non-potable

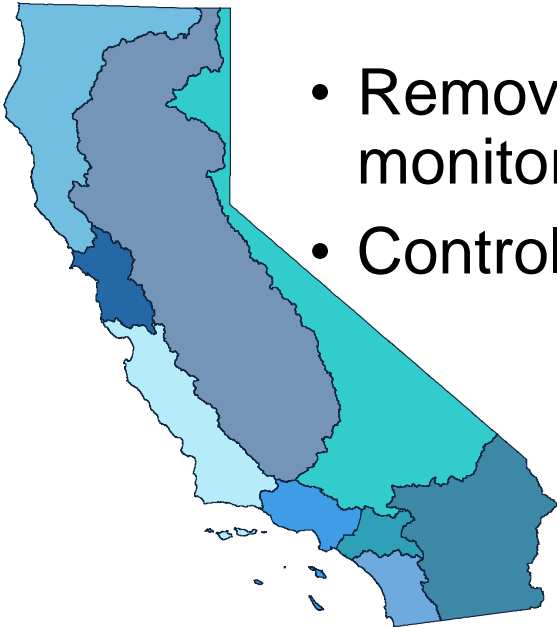
Groundwater recharge

Reservoir water augmentation

- All appropriate and eligible projects shall enroll under statewide water reclamation requirements
- Criteria for streamlined permitting to aid in antidegradation analysis for some projects



- Removal of priority pollutant monitoring requirements
- Control of off-site runoff



Permitting and Antidegradation Analysis

Non-potable Groundwater recharge

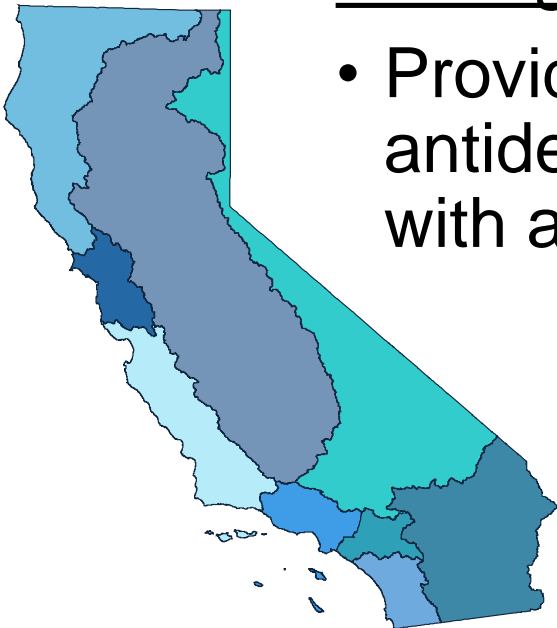
Reservoir water augmentation

- Refer to Title 22 regulations for indirect potable reuse – groundwater replenishment via surface or sub-surface application



Antidegradation

- Provide explicit guidance on antidegradation analysis for basins with and without an SNMP
 - Limit use of assimilative capacity guidance to proposed projects actively participating in SNMP development

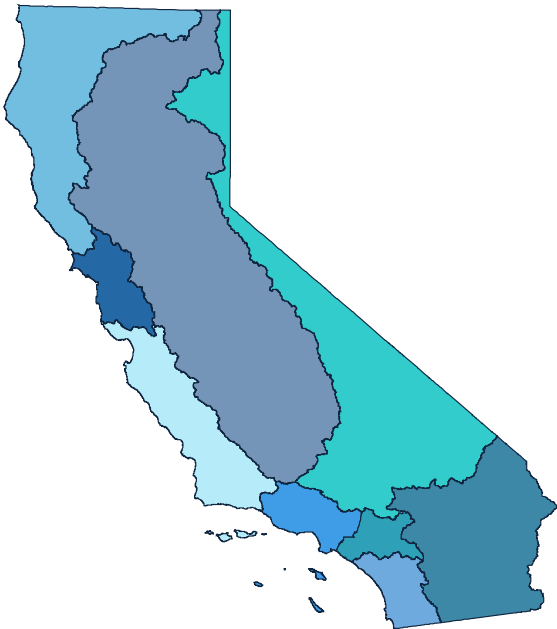


Permitting and Antidegradation Analysis

Non-potable Groundwater recharge

Reservoir water augmentation

- Refer to forthcoming Title 22 regulations for indirect potable reuse – reservoir water augmentation (surface water augmentation)



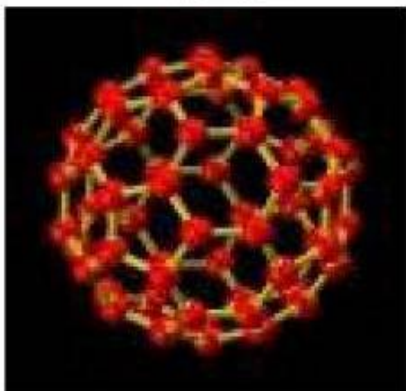
Constituents of Emerging Concern

Antibiotic
resistant
bacteria/
Antibiotic
resistance
genes



PFOA/
PFOS

Microplastics



Pesticides

Pharmaceuticals
and Personal Care
Products

Endocrine
Disrupting
Compounds

PBDEs

Flame
Retardants



CEC Science Advisory Panel

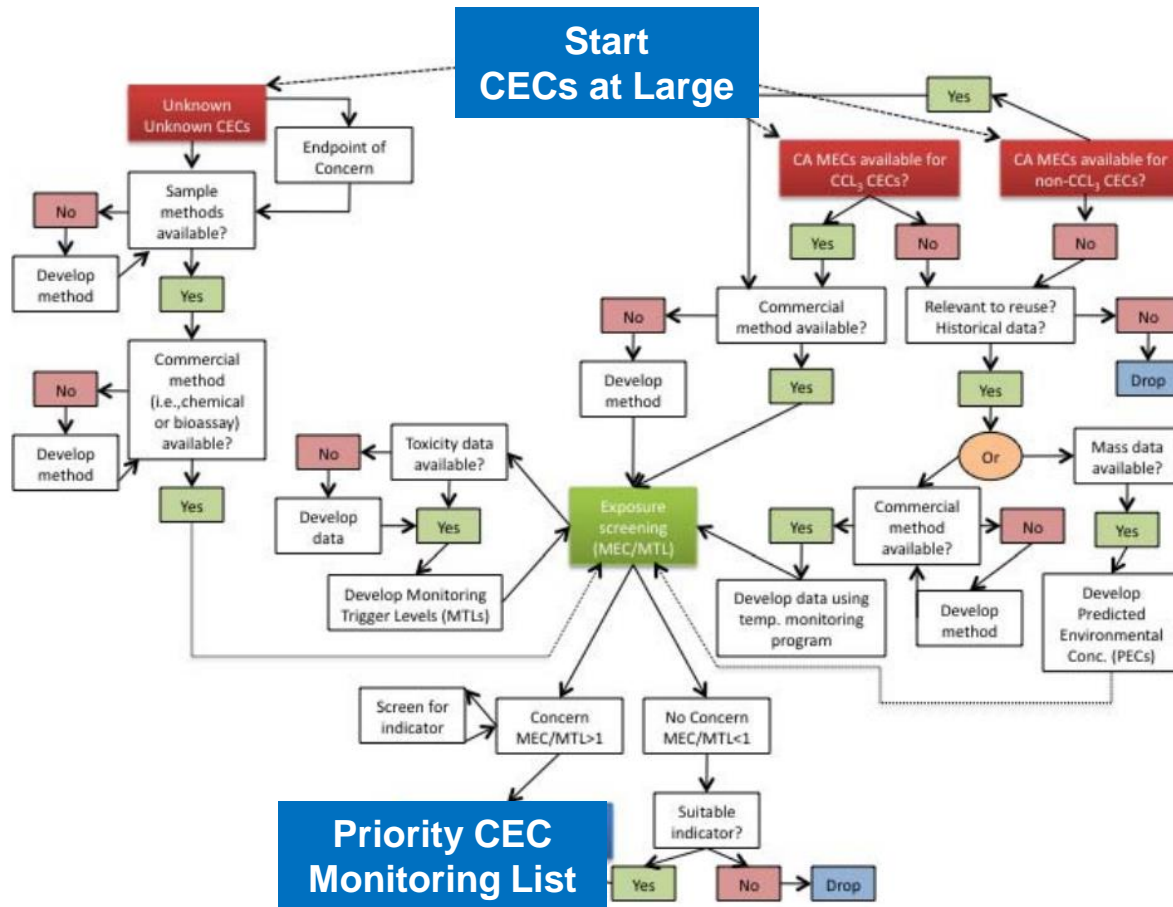
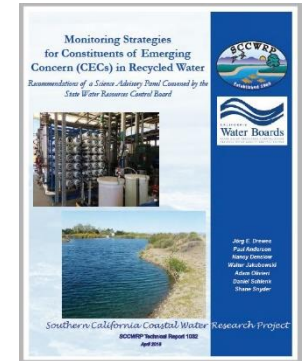
Goals: Update 2010 recommendations for groundwater recharge and make recommendations for all Title 22 approved uses and reservoir water augmentation

Key questions for the Panel:

- **What CECs should be monitored?**
- What is known about **toxicology** of CECs?
- How are CECs affected by different **treatment methods**?
- What **possible indicators** might be used to represent different suites of CECs?
- What **levels of CECs** should trigger enhanced monitoring?
- What research is needed on potential human health impacts of **antibiotic resistant bacteria and antibiotic resistance genes** related to recycled water uses?



CEC Science Advisory Panel



- Risk-based approach
- Is it present at a concentration of concern?
- Are there analytical methods?

Panel Recommendations

Recommendations

- **CEC monitoring for potable reuse applications**
 - Update list of targeted chemistry analytes
 - Bioanalytical screening tools
- Water Boards **programmatic changes** - develop a more flexible, responsive CEC program

Not recommended

- CEC monitoring for non-potable applications
- Monitoring for antibiotic resistant bacteria and antibiotic resistance genes
- Requirements for non-targeted chemical analysis

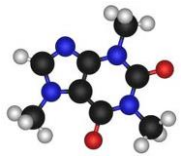
Panel Recommendations

*“The Panel cannot stress strongly enough that the outcome of the 2018 application of **the risk-based framework clearly points to the safety of potable and non-potable reuse practices in California.**”* (Drewes et al. 2018)

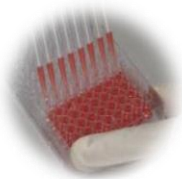
- Panel recommendations include a very large margin of safety
- Conservative assumptions are built into each step of the overall human health CEC screening process

Proposed CEC Monitoring

Groundwater Recharge & Reservoir Water Augmentation



Targeted chemistry



Bioanalytical screening tools



QA/QC requirements



2018 Panel Recommendations/ Proposed Amendment Requirements

	Groundwater recharge – surface spreading	Groundwater recharge – subsurface injection & Reservoir water augmentation
Targeted Chemistry - Health	1,4-dioxane	1,4-dioxane
	NDMA	NDMA
	NMOR	NMOR
Targeted Chemistry - Performance	Gemfibrozil	-
	Iohexol	-
	Sucralose	Sucralose
	Sulfamethoxazole	Sulfamethoxazole
Surrogates	Ammonia, DOC, Nitrate, Total fluorescence, UV absorbance	EC, DOC, UV absorbance
Bioanalytical	Estrogen receptor-alpha (ER- α) <i>in vitro</i> bioassay	
	Aryl hydrocarbon receptor (AhR) <i>in vitro</i> bioassay	

Proposed Amendment Requirements

Phased Monitoring Approach

1. Initial Assessment (1 year)
Quarterly
2. Baseline (3 years)
~Semi-annual
3. Standard Operating (ongoing)
~Semi-annual

Monitoring Locations

- Targeted chemistry
- Bioanalytical screening tools

Evaluation of Monitoring Results

Targeted chemistry & Bioanalytical

- Compare results to trigger levels

Response compared to trigger level	Response Action
Consistently < 0.1x trigger level	Potentially decrease or eliminate requirement
0.1x – 10x trigger level	Continue to monitor
> 10x trigger level	Resample to confirm result and continue to monitor
> 100x-1000x trigger level	Resample and contact Water Boards for potential additional investigatory actions

Permit Consistency



- Statewide order to update monitoring requirements
- Terminate coverage under regional water board general orders for non-potable uses of recycled water
- Review and if needed, update, all pre-2000 recycled water orders and permits for consistency with
 - 1) Title 22
 - 2) Recycled Water Policy, and
 - 3) Basin plans

Additional proposed amendments



- Substantive changes
 - Add definitions section
 - Remove preamble; transfer contents elsewhere
 - Modify agency roles to reflect current responsibilities, such as for the Division of Drinking Water under the State Water Board
 - Electronic reporting of data
 - Consistency with statute
- Non-substantive changes
 - Formatted numbering to be more clear

Next Steps

Date	Milestone
June 26, 2018 12 noon	Written comments due Email: commentletters@waterboards.ca.gov
July - August 2018	Scientific peer review
December 2018	Board meeting to consider adoption

Recycled Water Policy

https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

Staff Contacts

Laura McLellan – Recycled Water Policy

Laura.McLellan@waterboards.ca.gov
(916) 319-8288

Tessa Fojut - CECs

Tessa.Fojut@waterboards.ca.gov
(916) 323-5511

Scott Seyfried – SNMPs

Scott.Seyfried@waterboards.ca.gov
(916) 341-5585

Claire Waggoner

Claire.Waggoner@waterboards.ca.gov
(916) 341-5582

Recycled Water Policy

https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy

CECs and Recycled Water

https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/recycle_dwater_cec.shtml